

A SURVEY OF CASERTA ROYAL PALACE
EXPERIMENTS IN A METHOD OF INTEGRATED SURVEY

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ABSTRACT

In this paper we are going to deal with a few partial results of our research work about a survey of Caserta Royal Palace, including its park. Our research work aims at giving evidence, for information and preservation purpose, of the following items:

- the existant models and the most significant parts of the building, with the help of metric photography;
- the peculiarity of the palace as a whole and in its characteristic parts, through graphs and by using photogrammetry;
- the park and its fountains and statues, by means of metric photography and graphs.

The primary target of our research is meant to determine integrated survey procedures, which are necessary in order to achieve the above aims. The development of research has partially been performed so far; complete results are expected to be achieved within two years, provided work conditions may still be encouraging - with reference to financial funds available as well - the achievement of this research work are especially relating to the Royal Palace.

A FAR-SEEING PROJECT

In 1742 the British fleet was entering the bay of Naples. The British were threatening to bomb the capital town of the Reign of the two Sicilies, unless King Charles, a Bourbon King, would state his neutrality in the war between Spain and Austria, the latter being Britain's ally.

The King was forced to submit; but, at the same time, he arranged a plan for the town defence. Reinforcing the army, building up new factories for the production of war materials, strengthening the navy were the main purposes of his policy. He also planned to build a new royal palace in another capital town, which might house all offices and officers' dwellings, the Law courts, the Bishop's Church, a seminary, the theatre, the university and a library. A new capital town was needed as a town-planning device which might answer both purposes of providing a better defence from the sea and relieving Naples of the population increase which was a peculiar feature in those times. The idea was meant to establish a self-sufficient "mega-structure" which might serve a new town, located in the middle of a fertile industrious area. The plan was committed to architect Mario Gioffredo, aged 33 only. He drew his plan from Diocletian's baths and the "Escorial" palace. The result was a plan for a huge volumetric body, a fortified building, quite a fortress. But war engines having been greatly improved, the military purpose of such features proved quite useless. Financial reasons were also taken into account for putting the project aside.

So King Charles changed his mind and took the new Royal Palaces being built in Europe - such as Versailles - as a model. He rejected Gioffredo's plan and committed a new plan to Luigi Vanvitelli, the architect in charge of St. Peter's building.

The earliest plan and drawings that the artist gave the King date back to 1750-51. Then followed the final plan which was printed by Luigi Vanvitelli in 1756 in his volume "A Statement about the Drawings of Caserta Royal Palace". This plan included drawings referring to a wide park, as well as canalization of the water to be supplied

ed for carrying out such a wide building project. Moreover, he planned to let water flow through a covered canal as for as Naples and so provide Neapolitans with drinkable water supplies. In January 1752 the building was started as far as concerned the palace; studies concerning water canalization were being developed contemporarily. The palace lies on a rectangular plan, including four court-yards. It's over 200 m. long. The main feature of the outer front is the Ionic order lying on a high base, spaced by three foreparts slightly projecting in the middle and at both ends, as well as the rhythmical order of a quadruple suite of windows.

From the plain majestic lines of the front you walk to the large central porch leading to a splendid octagonal entrance hall, from which the large noble staircase starts. This staircase, in its highly dignified lines, owes its charming quality to a variety of perspectives and lights, affecting the visitor. Inside the rectangular plan two more building bodies intersect at right angle shaping the four court-yards and two foreparts in the middle of the longer fronts. In the four court-yards all corners are blunted by 45-degree cuts. Such and similar devices aim at relieving the huge body of the building of any sharp squareness and also make the architectural lines more gentle, preventing the whole body from looking too stout, as it may seem at first.

But Vanvitelli's ingenuity can especially be seen in the axial lay-out of the whole suite. We mean, the continuity of a perspective axis to be obtained by the continuous sequel of the outer central avenue leading to the palace, the royal palace gallery, the park central avenue and eventually the waterfall. As a consequence, the wide avenue leads from Naples to the building through the long inner threefold axial porch (a central porch to be used for coaches and two side porches for pedestrians) crossing the building lengthwise, and linking the octagonal lobbies as well. The architect was actually linking the two capital towns together, the old one and the new one, not only from an ideal point of view, but as a matter of fact, too. For this purpose, he used the wide avenue flanked by trees previously a thought one, which was to be bordered by two shipways - a project which was to remain unachieved.

At the opposite end, inside the park, the axis shops at a large waterfall, a successful optical conclusion for the whole perspective leading from the outer avenue through the gallery inside the building to the park avenue. The idea of the one perspective axis also affected the architect in building the wide staircase, which was designed sideways so as to allow people to walk all the way through the central gallery. This, the effect produced by the staircase setting, appearing on the right all of a sudden, is even more charming. Here is the core of the whole lay-out: the two lobbies laid over each other linked by the stairs. A wooden model, still extant in the palace museum, was prepared by the architect for this part of the building as well as for some more (such as the Chapel). The axial lay-out of the whole composition was taken into account when Vanvitelli supplied the gallery to the inner courtyard provided with porches, which used to allow a view of the gardens in the lower part, in the baroque age. The four court-yards of Caserta Royal Palace, on the contrary, are only used as space available for service, as they are meant more as town squares than as porches suitable to aristocracy dwellings.

Unlike the inner fronts, the main outer fronts, the one facing the square, the other one looking on to the park, though making use of the same structure and volumetry, are characterized by richer details and more emphasized decoration. The wall facing the park is more valuable in Vanvitelli's view: in fact, it's more closely linked to the green spaces used by the Royal family and Vanvitelli was a heir to the Renaissance architectural lines in this view. So, he enriched this front with a sequel of parastas, so as to give it a more plastic look.

The park is combined to the palace as constituting a whole body with it; this frame can be easily seen in Vanvitelli's plan. In the earliest lay-out, the influence of previous models were obvious - such as Versailles - the old forest, a pre-existing green expanse was divided into geometrically designed pathways, whereas the new part was designed in a more detailed lay-out: the central avenue was bordered with two pathways flanked with trees. Neither waterway nor pools or waterfall had been imagined yet. On the other hand, even though Vanvitelli had planned the lay-out of the

whole park, as precisely as he used to, in his last years, yet no planned fountains had been built until his death, in 1773. His son Charles put the work into practice. He succeeded in carrying out what his father had designed, being helped by many sculptors. The alternance of green meadows and fountain pools, along the lengthwise axis, was not devised as mere decoration, in its relationship with the whole scenery, but as a whole "architectural" combination with the palace. From the first fountain Margherita, in the area of the way into the park - set there as the background to a green meadow - you walk down towards the waterfall passing by still waters contained in the pools alternating to waters flowing from fountains or springing from spouts. On the background the waterfall - a magnificent hydraulic engineering work - pours water rolling off feigned rocks into the pool devoted to Diana, the hunting goddess.

Apart from details, Vanvitelli's whole work shows such a broad-minded view both in its planning and in its partially achieved, results, that we may well rank it as a piece of town-planning nowadays. His project, linking the new town to Naples along the axis-avenue, as well as the realization of farming industrial areas (e. g. S. Leucio, la Vaccheria, Carditello) to be developed all round the Palace was undoubtedly looking ahead. Nowadays an axis Naples-Caserta is heard of over and over again as being the possible metropolitan axis in Naples hinterland. So, Vanvitelli (and King Charles more than he) was right!

A SURVEY OF THE ROYAL PALACE

The survey of the Royal Palace has been planned by an integrated process of direct, topographical and photogrammetrical type, according as required. A network topographical bearing helped us, first of all, to join all further research work as well as to collect as many check points and measures as possible. In this view the North-South axis of symmetry was taken up as the main line which orthogonal olignements of vertical planes used as datum planes for surveying the northern and southern fronts, were referred to.

A Survey of Roofing Surfaces

As far as concerns a survey of the plan as well as of the altimetrical dimensions of the palace, we are dealing here with roofing surfaces. In this connection, a few air shots were taken on purpose, covering the whole area including the park as well as the building. They enabled us to plot the roofing surfaces. By the way such surfaces were referred to the altitudes of surrounding floors, both inner and outer ones.

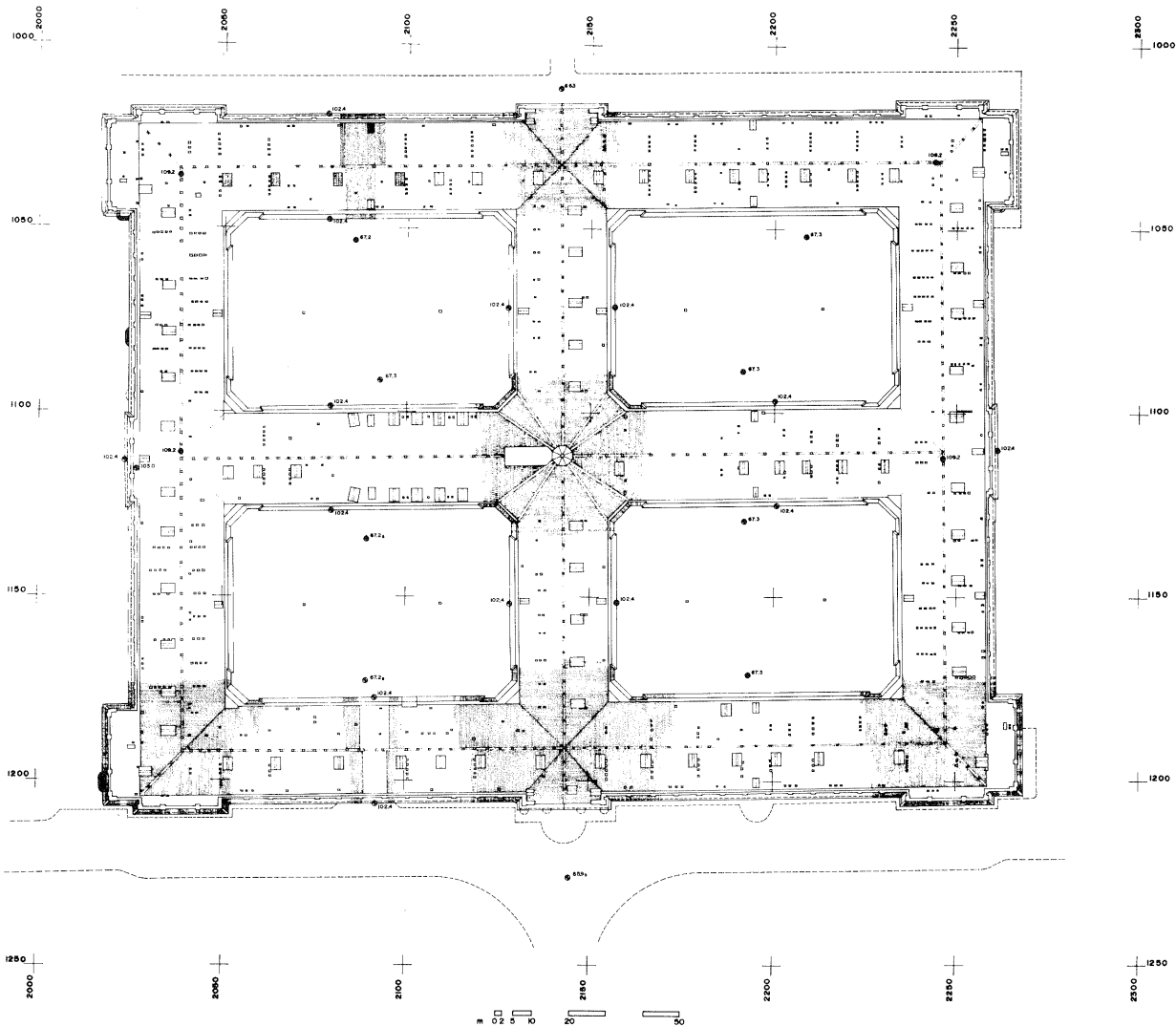
As such plan was being developed into graphs, the following main problems were considered:

- collecting as much information as possible in one drawing; the problem - emphasized by making the graph smaller for the present paper, later on - was solved with reference to the main altitudes only and by representing all significant architectural features through graphs;
- pointing out the roofing surfaces by means of symbols in order to save geometrical correspondence to truth; the result of this is suggested in picture 1.

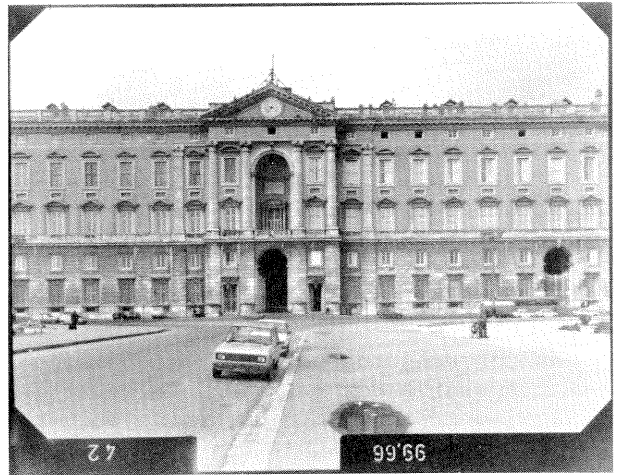
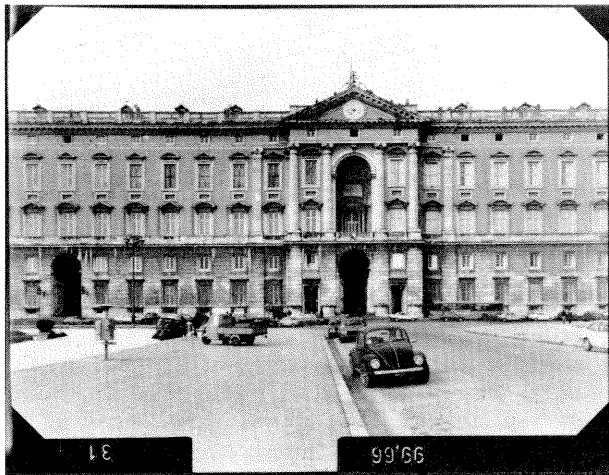
A Survey of Fronts

The northern and southern fronts have been entirely surveyed by photogrammetrical techniques, by operating a Wild P 31 camera (f=100 mm) and making three models for either. Picture 2, 3 are showing a central stereogram of the southern front and plotting its (with no integrations) which was carried out by means of Galileo-Santoni Stereosimplex mod. III.

With reference to model shown in picture 2, according to methods we referred to at item 3 of this paper, thirteen check points have been reckoned. When plotted, they turned out to be roughly correct, the average approximation (less than cm. 1,51),

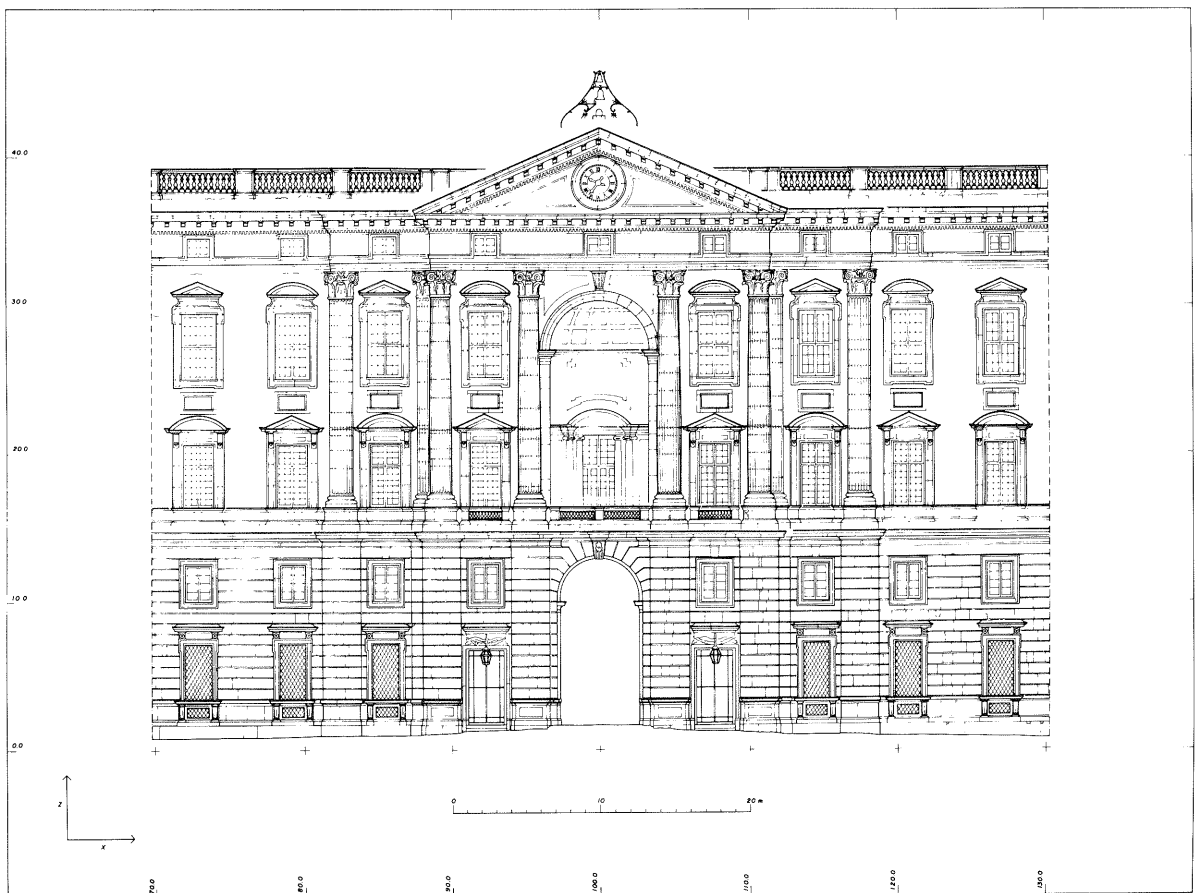


1



2

3



being almost acceptable, bearing in mind that in a stereoscopic model the scale correspondence is 1/250 and representation corresponds to 1/100.

A SURVEY OF OTHER PARTS OF THE SUITE

Other inner and outer faces of the Royal Palace are being surveyed, as well as singular parts of the park (statues and fountains).

FINAL REMARKS

As concerns the part we have been dealing with in this paper, survey has allowed us to answer a few questions satisfactorily so far, especially with reference to the following matters open occurring when recording historical buildings:

- a scale of representation (to be obtained, with no further enlarging, when plotting);
- a metrical relationship between parts traditionally neglected so far (roofing surfaces), is needed, as regards a coding system and graphical reduction as well;
- a relationship between altitudes referred to surrounding floors should be dimensions are noteworthy.

As regards the research work still being carried out, we can hardly deny it's quite stimulating, especially about such subjects as recording green spaces or sculptures (statues, fountains, etc.) which have not been satisfactorily investigated so far.

The research has been developed by the authors:

- prof. C. Cundari: responsible of photogrammetric acquisition
- prof. M. Fondelli, arch. L. Ippolito: responsables of photogrammetric plotting
- arch. G. M. Iacobitti: responsible of historical research
- prof. C. Cundari: responsible for the whole organisation.

The present research is also due to the contribution of ing. A. Ludovico and arch. A. Sartor.

"Sirio" Air photogrammetry Company has taken care of air shots of the Royal Palace and of its park. They have also taken care of the first draft of the air plotting shown in picture 1.

Wild Italia Spa (Joint Company) has provided the topographical tools used for surveys.